

# MULTIPLE STAYOUT ZONES FOR GROUND-BASED BRIGHT OBJECT EXCLUSION

## Abstract

A vehicle (12) including a control system (18) is used for controlling vehicle attitude or angular velocity (38). The processor (24) is coupled to a star sensor or tracker (22) and a memory (30) that may include a star catalog (32), and an exclusion list (36). The exclusion list (36), a list of stars to be temporarily excluded from consideration when determining attitude or angular velocity or relative alignment of star sensors or trackers, is calculated on-board. Such a calculation prevents the necessity for a costly, periodic, ground calculation and upload of such data. By manipulating the star catalog, or sub-catalogs derived from said catalog, based upon the exclusion list (36), measurements of such excluded stars are prevented from corrupting the attitude or angular velocity or alignment estimates formulated on board. The system uses multiple stayout zones for excluding stars from the exclusion list. A central exclusion zone excludes all stars while a second or more exclusion zones allow some stars to be used in the attitude deter-

mination.